(Continued from page 28)

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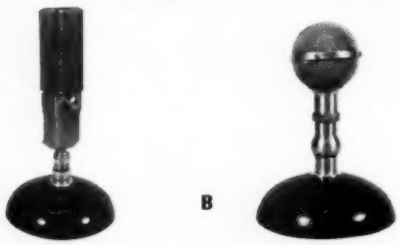

Fig. 18—Two Brush mikes: **A,** G2P2S, and **B,** BR2S.

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In 1937 Western Electric introduced a tubular-type directional microphone. This mike was designed for long-range pickup and was first used to cover the 1937 American Legion Parade in New York City. It consisted of the Model 618A pressure-type mike coupled to their D99098 impedance element which consisted of 55 aluminum alloy tubes whose lengths varied by equal amounts from 1¼ in. to 5 ft. When this mike was used to cover the parade, it was located on the sixth floor roof of the Empire State Building overlooking Fifth Avenue and was able to pick up any one of three bands playing different music at the same time.

In 1939 RCA developed a very similar mike, and these mikes were given various nicknames such as machine-gun mike, shot-gun mike, and rifle mike.

Another company that developed a different type of microphone was Bruno Laboratories, Inc. This company specialized in velocity-type microphones. They produced the standard magnetic-ribbon velocity mikes under an agreement with Western Electric but also produced an electrostatic-type velocity mike on which they held patents. This microphone required a polarizing voltage from 150 V d.c. to 350 V d.c. Some models had a frequency response of 30 to 14,000 Hz. using a polarizing voltage of 350 V. As the polarizing voltage was reduced, the high end of the frequency response fell off. These mikes went under the trade name of "Velotron" and were high impedance devices. In 1939 Bruno developed a no-voltage Velotron, which was a forerunner of the present day electrets. They used a coating of carnauba wax which was subjected to a high voltage charge and supposedly held this charge indefinitely. A few years after producing this mike Bruno Labs. Inc. was no longer in business. I've often wondered if this mike continued to work after a few years and if not, whether this was why Bruno went out of business.

This use of the electret principle by Bruno was not the first. The Japanese had experimented with it as early as 1928 and used an electret in their walky-talkies in WW II. An American had also filed for a patent on a mike of this type in 1931 and received it in 1935. Microphone development after 1940 until now has been primarily in improving existing types and developing mikes for specific applications, directivity patterns, size and shape.

Although the double-button carbon mike with stretched diaphragm has disappeared, the single-button carbon is still used in telephones and wherever a rugged mike with restricted frequency range and high signal output is required.

The condenser mike, which became quite popular in the 20s and 30s and lost its popularity due to its cumbersome size, heavy cable, and power supplies, has made a comeback due to the new electrets that have none of these disadvantages and some new advantages over other mikes.

The ribbon velocity is still around although not as popular as the moving coil and condensers. The crystal mike lost its appeal in the sound cell type but grew rapidly in the diaphragm type, particularly in the 50s and 60s when every tape recorder sale included a crystal mike. The crystal mike evolved into the ceramic type for better climatic performance. Now that the electronic industry is almost all transistorized, the ceramic and crystal mike are losing favor again because of their high impedance characteristics.

Moving coil or pressure dynamics have constantly improved in all their characteristics, size, shape of directivity patterns, and rugged construction so that today they are the most popular of all the types.

We can now buy microphones for any audio application that we can dream up, regardless of shape, size, frequency response, and directivity pattern required. Now if only someone could come up with one that wouldn't go into acoustic feedback under *any* conditions.

Annual Index

Subject Index

Amplifiers
High-Voltage Amp Design, James Bongiorno, Feb., 30.
Thermal Design of a High-Power Amplifier, J. L. Veranth, Feb., 24.

Annual Product Directory, October
Directory of Manufacturers, 30; Preamps, 34; Amps, 38; Receivers, 46; Multi-Play Turntables, 58; Manual Turntables and Tone Arms, 64; Tuners, 68; Phono Cartridges, 72; Open-Reel Tape Recorders, 74; Cassette and Cartridge Recorders, 79; Speakers, 92; Equalizers, 118; Headphones, 120; Microphones, 124; Addenda, Dec., 30.

Book Review: *Microphones* by Lou Burroughs, David Lane Josephson, Dec., 56.

Cartridges
Nine CD-4 Phone Cartridges Tested, March, 36.

Christmas Buying Guide, Nov., 24.

Construction
Build a Theremin, Robert Brown and Mark Olsen, Nov., 38.
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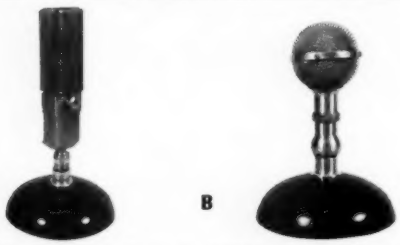

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Construct a Magnetic-Cartridge Preamp, Alan G. Ogilvie, June, 40.
A Stereo Control System, Richard S. Burwen, Oct., 20.

Converting to Monophonic Sound, Gerard Rejskind, Apr., 66.

A Dipole Speaker System, Benjamin B. Bauer, Sept., 50.

Education
IAR—Classroom to Studio, Solomon R. Kunis, Aug., 50.
Education in Audio, Paul Moverman, July, 26.

Equipment Profiles
AKAI 4000DS Tape Deck, May, 45.
Altec Concept EQ5 Speaker System, Feb., 64.
Applied Physics Lab APL-101 Speaker, June, 65.
Audioanalyst A-200 Speaker, Jan., 55.
Audionics High-Definition Quadraphonic Decoder, Aug., 64.
BSR 710/X Turntable, Feb., 62.
Bose 1801 Stereo Amplifier, Jan., 60.
Crown DC-300A Amplifier, Nov., 64.
Dynaco AF-6 AM/FM Tuner, Sept., 80.
ESS Pre-Amp and Model 200 Power Amp, May, 48; Addendum, July, 51.
Fairfax FX-350 Speaker System, Nov., 68.
Fisher 4060 2/4-channel Receiver, June, 56.
Frankman Integrated Stereo Speaker System, July, 46.
Frazier Concerto F-10W-37 Speaker, March, 70.
Harman/Kardon 900+ AM/FM Multichannel Receiver, May, 36.
Hartley Stereo Speaker Sentry, June, 48.
Hitachi TRQ-2040 Cassette Recorder, June, 62.
JVC 4VR-5446 Four-Channel Receiver, Jan., 44.
Magnavox MX-12 Speaker, May, 40.
Marantz 4400 Stereo/4-Channel Receiver, Sept., 66.
McKay Dymek AM-3 Tuner, Dec., 60.
McKay Dymek DA-3 AM Antenna, Dec., 60.
Nakamichi Tri-Tracer 1000 Cassette Recorder, March, 66.
Panasonic Strain-Gauge (Semiconductor) Cartridge, Aug., 65.
Pilot 366 Four-Channel Receiver, March, 60.
Pioneer QX-949 Four-Channel Stereo Receiver, Apr., 52.
Russound/FMP TMS-1W Tape Recorder Selector Switch, March, 82.
Sansui AU-9500 Integrated Amplifier, June, 59.
Scott 451C Sound Level Meter, Nov., 74.
Sequerra Model 1 FM Tuner, Aug., 54.
Sharp RT-480U Stereo Cassette Deck, Nov., 58.
Sherwood Evolution One Speaker System, Apr., 58.
Shure M688 Pre-Amplifier, Dec., 64.
Superscope CD-302 Cassette Recorder, Dec., 62.
Superscope R-350 AM/FM Stereo Receiver, Feb., 59.
Tandberg TR-1055 FM/AM Stereo Receiver, July, 40.
Technics by Panasonic RS-279US Cassette Recorder, Apr., 55.
Technics by Panasonic SA-8000X 2/4-Channel Receiver, Nov., 50.
Technics by Panasonic SL-1200 Direct-Drive Turntable System, July, 44.
Thorens TD-125AB Mk. II Turntable, Feb., 67: Addenda, Apr., 64.
Wollensak 4780 Cassette Tape Recorder, Aug., 62.
Yamaha CA-1000 Integrated Amp, Sept., 81.

The Gramophone: Basis for an Industry, Robert E. Brockway, June, 28.

Headphones
Headphones Around the House, Leonard Feldman, May, 24.
Why Electrostatics? Jacob Turner, May, 22.

Loudspeakers
New Loudspeaker With Extended Bass, William H. Watkins, Dec., 38.
Speaker Test Explanations, Richard C. Heyser, *Anechoic Frequency Response,* Nov., 44; *Frequency Response-Phase,* Dec., 71: *Impedance,* Sept., 33.

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Attached parts: Oil, adaptor for 45 r.p.m., driver, felt legs
Rated voltage: Local voltage
Net weight: 7.5 kg
Overall dimensions: 435 (W) × 357 (D) × 174 (H) mm

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Language of High Fidelity, Martin Clifford, *Part XI,* Mary, 28; *Part XII,* Dec., 48.

Microphones
Microphones—Vital Link in the Recording Chain, David Lane Josephson, *Part 2,* July, 34; *Conclusion,* Aug., 38.
Mikes of the Pre-War Era, Robert Paquette, Dec., 22.
Mike Techniques and Sound Effects, Albert R. Jourdan, Dec., 32.

Music
The Folk Process, Ira Mayer, Apr., 47.
Liv Taylor in Concert, Michael Nise, May, 58.
Ragtime on Record, Charles B. Davis, Jr., June, 50.

Obituary
Murray G. Crosby, Sept., 18.

Organs
Fixing Your Electronic Organ, Jon Turino, Nov., 30.

Quadraphonic Progress Report, George W. Tillett, July, 20.

Quadra-Direction Discreet Compatible Stereo System, Fumitaka Nagamura, *Part 1,* Jan., 30; *Part 2,* Feb., 40; *Conclusion,* March, 46.

Recording
Cassette Transport Problems, Neal Rayborn, Sept., 30.
A Primer on Choosing Tape, William A. Manly, Sept., 34.
Rx for 78s—Tape Them, Arthur Shifrin, Apr., 22.

Sound Reinforcement
All About "Q", Don Davis, *Part 1,* June, 34; *Conclusion,* Sept. 58.

Test Records
From the Ortofon Test Record Library, Henning S. Madsen, March, 28.

Tuners
New IHF Tuner Specs, Leonard Feldman, Jan., 20.

20th Century Witchcraft—Electronic Surveillance, Daniel Queen, Jan, 40.

Author Index

Bauer, Benjamin B., *A Dipole Speaker System,* Sept., 50.

Bongiorno, James, *High-Voltage Amp Design,* Feb., 30.

Brockway, Robert E., *The Gramophone: Basis for an Industry,* June, 28.

Brown, Robert and Mark Olsen, *Build a Theremin,* Nov., 38.

Burwen, Richard S., *A Stereo Control System,* Oct., 20.

Canby, Edward Tatnall: *Audio ETC*
CD-4, Jan., 14;
Listening to Music, Feb., 14;
Shortages, March, 22;
Discs, Apr., 44;
New Stereo Bonanza, May, 14;
Live Broadcasting, June, 20;
Signals and Noises, July, 14;
Yamaha in Japan, Aug., 20;
Japan #2, Sept., 20;
The Audible Document, Oct., 14;
Binaural Recording, Nov., 16;
Binaural Recording II, Dec., 16.

Clifford, Martin, *Language of High Fidelity, Part XI,* May, 28; *Part XII,* Dec., 48.

Davis, Charles B., Jr., *Ragtime on Record,* June, 50.

Davis, Don, *All About "Q", Part 1,* June, 34; *Conclusion,* Sept., 58.

de Vries, Jan and Michael Lampton, *Build an ES Tweeter/Cone Woofer System,* Aug. 28.

Feldman, Leonard, *Headphones Around the House,* May, 24; *New IHF Tuner Specs,* Jan., 20.

Heyser, Richard D., *Speaker Tests: Anechoic Frequency Response,* Nov., 44; *Frequency Response-Phase,* Dec., 71; *Impedance,* Sept., 33.

Josephson, David Lane, *Microphones —Vital Link in the Recording Chain, Part 2,* July, 34; *Conclusion,* Aug., 38; Book Review: *Microphones* by Lou Burroughs, Dec., 56.

Jourdan, Albert R., *Mike Technique and Sound Effects,* Dec., 32.

Kunis, Solomon R., *IAR—Classroom to Studio,* Aug., 50.

Lampton, Michael and Jan de Vries, *Build an ES Tweeter/Cone Woofer System,* Aug., 28.

Madsen, Henning S., *From the Ortofon Test Record Library,* March, 28.

Manly, William A., *A Primer on Choosing Tape,* Sept., 34.

Mayer, Ira, *The Folk Process,* Apr., 47.

Moverman, Paul, *Education in Audio,* July, 26.

Nagamura, Fumitaka, *Quadra-Direction Discreet Compatible Stereo System, Part 1,* Jan., 30; *Part 2,* Feb., 40; *Conclusion,* March, 46.

Nise, Michael, *Liv Taylor in Concert,* May, 58.

Ogilvie, Alan, G., *Construct a Magnetic-Cartridge Preamp,* June, 40.

Olsen, Mark and Robert Brown, *Build a Theremin,* Nov., 38.

Paquette, Robert, *Mikes of the Pre-War Era,* Dec., 22.

Pisha, B.V., *Nine CD-4 Phono Cartridges Tested,* March, 36.

Queen, Daniel, *20th Century Witchcraft—Electronic Surveillance,* Jan., 40.

Rayborn, Neal, *Cassette Transport Problems,* Sept., 30.

Rejskind, Gerard, *Converting to Monophonic Sound,* Apr., 66.

Shifrin, Arthur, *Rx for 78s—Tape Them,* Apr., 22.

Tillett, George W., *From the Lab,* Jan., 8; Aug., 46; *Quadraphonic Progress Report,* July, 20.

Turino, Jon, *Fixing Your Electronic Organ,* Nov., 30.

Turner, Jacob, *Why Electrostatics?,* May, 22.

Veranth, J. L., *Thermal Design of a High-Power Amplifier,* Feb., 24.

Watkins, William H., *New Loudspeaker With Extended Bass,* Dec., 38.

Whyte, Bert: *Behind the Scenes*
Gene Krupa, Jan., 10;
Burwen Dynamic Noise Filter, Feb., 10;
Recorded Cassettes, March, 16;
Ampex AG-440C, Apr., 10;
Quadraphonic recordings, IC Chips, May, 8;
Phonograph Discs, June, 12;
Wollensak 8075, July, 8;
AES Convention, Aug., 16;
Summer CES, Sept., 14;
Infinity Systems, Oct., 10;
New York AES Convention, Dec., 10.